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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/606,347

06/26/2003

Lien-Ken Lin

4006-258

3645

22429

7590

08/24/2006

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EXAMINER

BENENSON, BORIS

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/606,347	Applicant(s) LIN ET AL.	
	Examiner Boris Benenson	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Actions

1. Amendment received on 8/04/2006 is entered.
Claims 1,5,9,11, and 18 are amended.
Claims 1-21 are pending in the Application.

Claim Objections

2. Claim 21 is objected to because of the following informalities: A status of the Claim 21 is identified as "New", but the Claim has been presented on 2/23/2006 and therefore should be identified as "previously presented". Appropriate correction is required.

Response to the arguments

3. Applicants argue that term "cutting off" power means the power has been off and "stopping" the fan means to temporary stop transferring drive signal to the fan. In Examiners opinion a fan is a motor and a set of blades driven by the motor, therefore controlling rotation of the fan means controlling rotation of the motor. **A drive signal** to controls rotation of any electrical motor **is a power** applied to coils of the motor. In order to protect locked motor from burning down the drive

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signal read on power should be removed and basically any attempts of restarting the motor consist of attempts to reapply the power. Term "cutting off" power of the motor cannot mean physically cut power conductors, but means stop attempts of reapplying the power. In that critical event plurality of other steps can be made for example a visual or audio alarm indication to call attention of personal, powering down a system which the fan was supposed to cool, etc. All such steps have nothing to do with fan protection method or fan protection apparatus.

4. Applicants argue that Pohl et al. (4,772,019) de-energizes the motor when a locked condition happens by cutting off the power supplied to the fan, which is different from stopping the fan as claimed. The prior art discloses a the method and apparatus to analyze if a fan has been locked read on stopped and if it is true removed a drive signal from the fan. After the removal of the drive signal from the fan, a controller analyzes if attempt to reapply the drive signal read on restart the fan should be made. The Specification or the Drawings do not provide any additional meaningful information of type of the drive signal or a way in which drive signal is applied or removed. Applicants provide similar argument relating to Makaran (5,774,921). Arguments are not convincing.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 11-13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pohl (4,722,019) in view of Glorioso et al. (6,301,105). Pohl disclosed a Protection Method And Systems For Refrigeration Systems Suitable For A Variety Of Different Models. Pohl disclosed, "In the event a locked-rotor condition is recognized whereby the motor/compressor fails to start at all, an appropriate response is to de-energize the motor/compressor, allow a delay interval to elapse, and then allow a limited-number of restart attempts. Although a restart count is thus maintained, after three consecutive minutes of operation without a fault, the restart counter can be reset"

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(Col.5, Lines 30-37). Such disclose indicates steps to taken in the process:

Stopping the motor (de-energize the motor),

Determining whether or not a number of fan stops is equal to a set number and starting said fan when said number of fan stops is not equal to said set number and repeating steps a. and b. until number of fan stops is equal to said set number (allow a limited-number of restart attempts)

Determining whether or not said fan can work normally; resetting said set number when said fan can work normally (after three consecutive minutes of operation without a fault, the restart counter can be reset).

Flow-diagram (Fig.5A, Box 530) indicates that when number in LRC (Locked Rotor Counter) if more than 6 read number of motor stops is equal to set number procedure "end and call service" read on cutting off power to the motor. Pohl disclosed use of the method and the system for controlling a motor driven load /compressor in particular/. Pohl doesn't disclose the method and system controlling a fan. Glorioso et al. teach, "The fan motor rotates about an axis to move blades that in turn cause air to flow" (Col.5, Lines 65-66). Therefore in order to control rotation of a fan a rotation of the fan motor should be controlled. It would have been obvious to one of ordinary skill in the art at the

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time the invention was made to have modified Pohl and use the teaching of Pohl to control rotation of a fan motor, because it will provide protection to the fan motor in locked conditions and prevent it from burning down even if attempts to restart it failed.

Referring to Claims 3 and 11, the apparatus includes a switch (Fig.1, Pos.34) controlled by a control system (68). The control system includes a counter (LRC) which advanced each time when locked rotor is detected to count a number of unsuccessful starts (Fig.5A, Box 526) and allow restart if the number is less than a set number of restarts or stops restart attempts if the number is greater (Box 530). The apparatus includes a time delay counter (T2) that prevents restart of the motor for 120 seconds read on stops the motor for a first time.

Referring to Claims 4 and 12, if the motor is working properly for more then 180 second the counter (LRC) is reset (Fig. 5B, Box 570).

Referring to Claims 2 and 13, Pohl disclosed a "The Fig.2 control system is microprocessor-based, and thus includes a suitable microprocessor or microcontroller 200 operating under stored program control in a matter well known to those skilled in the art. While a variety of microprocessor systems may be employed, one which is suitable is a Motorola Semiconductor Type

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No. M6805 Single-Chip N-Channel Microcontroller, which includes, within a single integrated circuit device, program ROM, RAM, a CPU and a variety of I/O line drivers" (Col.8, Lines 23-33). It is inherent that a user is able load into the microprocessor a program and setup parameters.

6. Claims 5-10 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makaran (5,744,921). Makaran disclosed a Control Circuit For Five-Phase brushless DC Motor. Makaran disclosed a protection method comprising all required steps (Fig.10 Box 430-448). Makaran didn't disclose a motor being a part of fan assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have use a method of Makaran in fan assembly, because it will provide an adequate protection to the fan.

Referring to Claim 6-7, Makaran disclosed use of microprocessor that includes a non-volatile memory. "Non-volatile memory 204 may also include a separate FLASH or EEPROM memory programmed during the production of motor 102 with data taking into account motor-to-motor variations and special customer requirements" (Col.7, Lines 17-21). A term "special customer requirements" obviously includes a parameters set by user.

Referring to Claim 8, Boxes 434 and 440 are representing counters for counting a first and a second stopping numbers.

Referring to Claim 10, box 432 is analyzing if motor is normally working or stalled. If the motor is working properly it will not be disabled in box 434.

7. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pohl (4,772,019) in view of Makaran (5,744,921). Pohl disclosed all the limitation of Claim 11 as it were discussed above. Pohl didn't disclose a second counter connected to the first counter. Makaran teaches the second counter that counts all restarts and therefore restarts with a first time delays and in the same time enable to provide different time delay after predetermine number of restarts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Pohl with teachings of Makaran and use a second counter, because it will enable provide complete count and setup different time delay after predetermine number of restarts.

8. Claim 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Makaran (5,744,921) in view of Pohl (4,772,019). Makaran disclosed all the limitation of Claim 18, as it was discussed above. Makaran didn't disclose reset of counters it control circuit detects that the motor functioned

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properly. Pohl teaches to reset the counters if it was established that the motor is working properly for at least 180 second. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Makaran with teachings of Pohl and reset counters upon detection that the motor is working properly, because it will enable the control system properly execute stall detection-reset algorithm if stall condition will appear in a future time.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris Benenson whose telephone number is (571) 272-2048. The examiner can normally be reached on M-F (8:20-6:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 ext 36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Boris Benenson
Examiner
Art Unit 2836

B.B.

A handwritten signature in black ink, appearing to read 'B. Sircus', with a stylized flourish extending from the end.

BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800